What is claimed is:

1. A method of holding a manifold comprising the steps of:

a) providing a universal manifold holding fixture;

b) adjusting the length of the universal manifold holding fixture such that the fixture is at least as long as the manifold;

c) attaching the manifold with a manifold attachment assembly such that the manifold is slidingly attached with the universal manifold holding fixture;

d) aligning the manifold with a machining guide assembly;

e) clamping the manifold with a clamping assembly such that the manifold is held in isometric tension with respect to the universal manifold holding fixture

f) removing the machining guide assembly prior to machining.

2. The method of claim 1 wherein adjusting the length of the universal manifold holding fixture comprises:

a) providing a centering shaft appropriate for attachment with a machining tool;

b) positioning a pair of substantially parallel endplates along the centering shaft such that the manifold is completely encompassed by the universal manifold holding fixture;

c) locking into position the pair of substantially parallel endplates with at least a pair of length adjustment plates such that the centering shaft and the substantially parallel endplates are substantially perpendicular with respect to the length adjustment plates.

3. The method of claim 2 wherein the locking into position is accomplished by clamping the centering shaft.

4. The method of claim 1 wherein attaching the manifold with a manifold attachment assembly comprises:

a) providing a centering slide block having a manifold mounting plate for attachment with the manifold;

b) attaching the manifold with the manifold mounting plate.

5. The method of claim 1 wherein aligning the manifold with a machining guide assembly comprises:

a) providing a plurality of centering adapter blocks that are removably attached with the endplates;

b) attaching a pair of side locating bars with the plurality of centering adapter blocks;

c) locating the manifold onto the side locating bars such that the manifold is aligned and centered with the centering shaft.

6. The method of claim 5 wherein providing a plurality of centering adapter blocks further comprises:

providing shimming material between the centering adapter blocks and the endplates such that manifolds of varying size may be accommodated in the fixture.

7. The method of claim 1 wherein clamping the manifold with a clamping assembly comprises;

a) providing a plurality of split ring collar clamps having a corresponding collar-clamping bolt;

b) aligning the split ring collar clamps with a plurality of manifold bolt holes;

c) clamping the manifold by applying tension to the manifold with the collar-claming bolts such that the manifold is held in isometric tension.

8. The method of claim 1 wherein aligning the manifold with a machining guide assembly comprises:

a) providing a bottom centering plate whereby the center of the manifold may be located to the universal manifold holding fixture;

b) aligning a manifold centering hole with the bottom centering plate;

c) inserting a centering pin through the bottom centering plate into the manifold centering hole whereby the central axis of the manifold may be aligned with the centering shaft.